***MEMORANDUM***

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| **DATE:** | February 1st, 2016 |
| **FROM:** | Joe Harrington |
| **SUBJECT:** | February Weekly Progress Report @ Gold King |
| **TO:** | Steven Way |

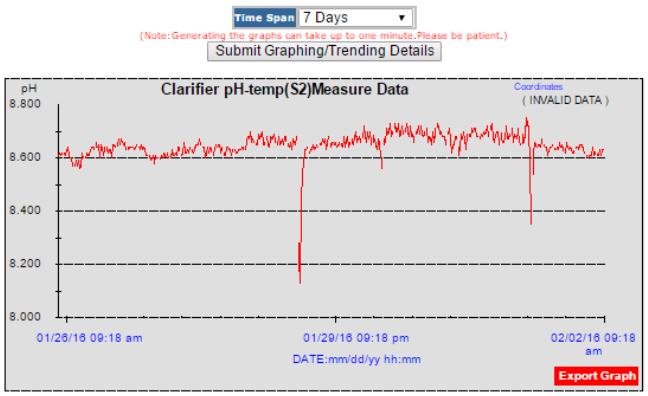
**Project:** Gold King Interim Water Treatment Plant (IWTP)
**Location:** Gladstone, Colorado
**Prepared for:** Emergency Response Unit – US EPA Region 8

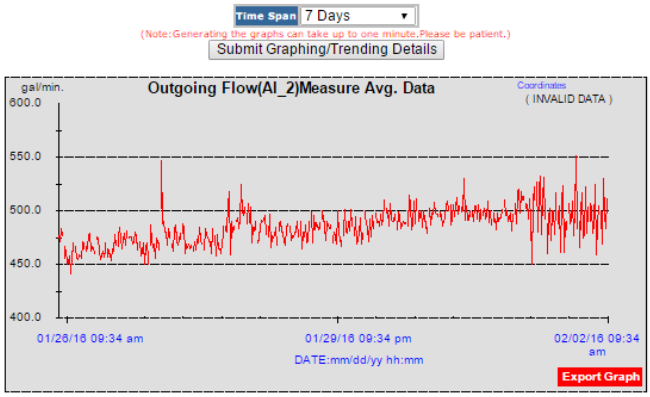
**Reporting Period:** Jan 25 – Feb 1
**Report No.:** 6

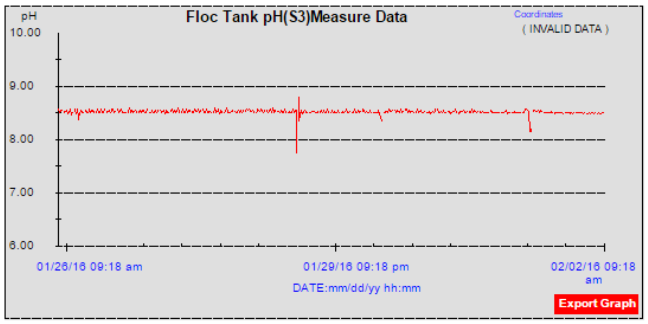
## I. General Operations Summary:

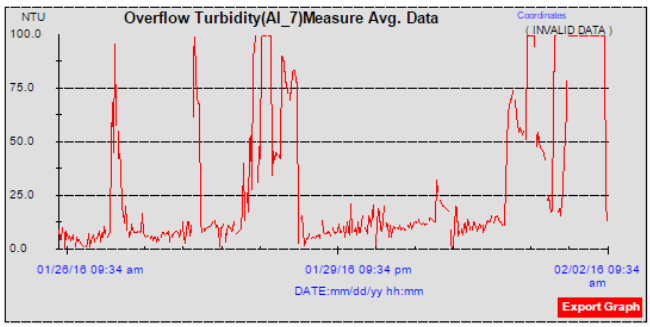
### IWTS Function/Upsets

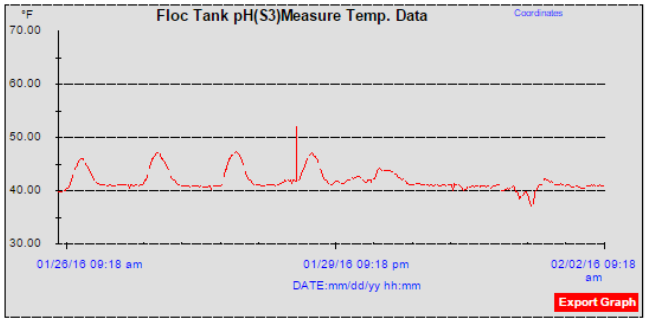
- The following graphs provide trending information collected by datalogging equipment during the previous 7 days. These dataloggers collect control information from the Lime Circuit (left) and Flow Circuit (right) Programmable Logic Controllers (PLCs) at the Gold King IWTP. Over the reporting period (1/25 – 2/1/16 inclusive) Alexco treated 5.06 million gallons at an average of 502 gpm, with 5 gpm released from the sludge storage system and 497 gpm to the discharge line.

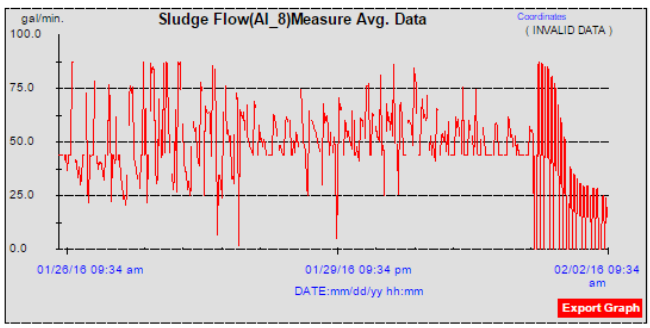


- Please note: Each day, the Alexco operators check the pH at both the floc tank and clarifier discharge. During this time, the probe is placed in vinegar (acid), and three pH buffers – 4, 7, and 10. While the probe is in the buffer, the datalogger may captured one of those points for tracking purposes, which explains the frequent periodic (daily) pH spikes seen on the graph.

**Communication System Function Status**

- EPA(ER) has asked Century Link for a quote to provide internet service to the IWTP, but the status of that request is unknown.

**Facility or System Related Work, including Repairs & Completions**

- Alexco installed a pump, flow meter, and discharge line from the D cell (lowest cell) to the flash tank on the clarifier on 1/19/2016. This "pumpback" system can operate between 15 to 60 gpm to eliminate the discharge from the textile bags to the creek, and instead send sludge-water back to the clarifier for re-treatment.
- Precision Electric has completed the following electrical projects:
    - Hardwire and test the 50hp electric blower to the main panel, and conduct tests to verify that lime can be pneumatically transferred from the horizontal silo to the vertical silo.
    - Connect all lighting throughout the building, above the clarifier, and install two lights outside of the building that come on at night.
    - Replace the 4th electric heater located within the IWTP.
    - Confirm that the backup generator's automatic transfer switch works and starts the generator during a loss of grid power.

**II. Identified Problems, Causes, and Solutions (Planned or Implemented)**

- **Door Replacement** - Summit Mechanical is scheduled to replace the 12' x 14' roll-up door in early February. The existing door was weighed down by ice/snow, which damaged the chain drive. It is the wrong door for the extreme conditions of Gladstone.
- **Thickener** - Alexco has purchased a thickener tank to be installed downstream of the clarifier. Alexco is currently sending roughly 30 to 55 gpm of sludge at 1% solids from the clarifier to the bags. With this thickener, the discharge rate will be reduced to between 5 to 15 gpm with an increase in solids to 3% to 5% solids.
- **Additional Bags** – Alexco has purchased additional textile bags (2X 125' x 45 and 1X 90' x 45') that are currently located at site. Alexco is planning to install one or two additional textile bags in the A and B cells if needed depending on access and snow cover. These new bags should demonstrate improved performance because of the improved quality of floc mixture and consistent dosing rate.
- **Electrical Inspection** – During the service inspection the local state inspector, Don Nowlin, had concerns about the type of electric cabling used to connect all equipment and main breaker panels within the plant. This inspector will be questioned further to better understand his concerns and potential updates needed for the plant to pass a final electrical inspection.

**III. System Inspections – Specific elements inspected and finding**

- The QA/QC box plot analysis of the testing results indicates that the probes deviate beyond acceptable threshold limits around 4 days without cleaning, therefore cleaning has been conducted 3x weekly and will continue at this frequency unless the box plot analysis indicates more frequent cleaning is necessary. Box plot analysis is conducted monthly and reviewed by the Project Director. The Project Director will determine if the replacement of the probes is necessary from inspection of the testing results and if the cleaning and calibration schedule is sufficient.

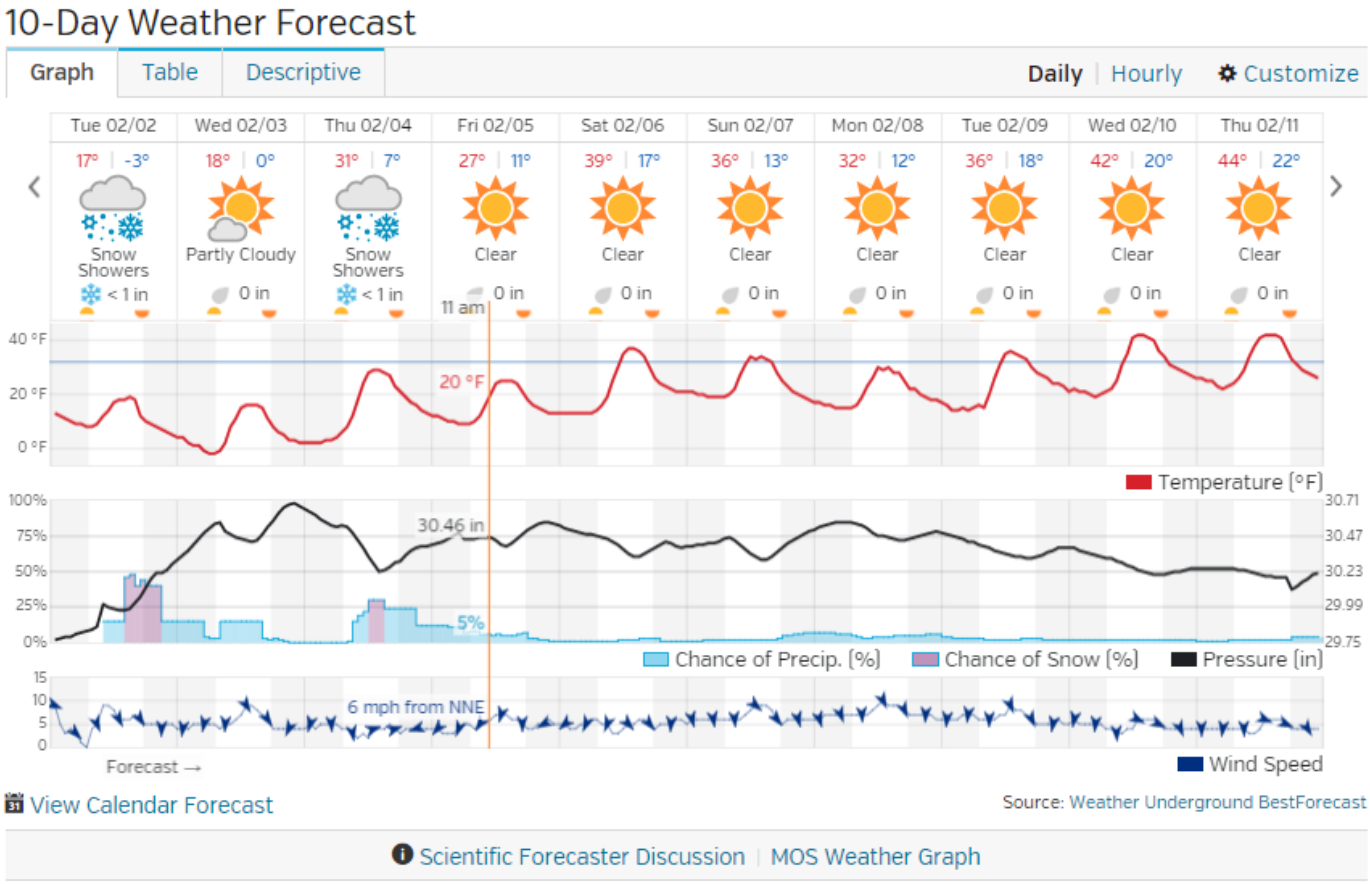
**IV. Site Status**

**Personnel and equipment onsite**

- Alexco currently employs two FTEs who live in Silverton that oversee operations at Gold King IWTP.

**Weather conditions**

- Weather Underground Report for Silverton, CO (2/2/2016 – 2/11/2016)



**Site Pictures**

Figure 1: Site from County Rd. 110 – Taken on 1/19/2016

Figure 2: 5 hp dewatering pump installed in Cell D – Taken on 1/19/2016

Figure 3: Sand bags installed near the spill-way into Cement Creek – Taken on 1/19/2016

Figure 4: Inline flow-meter and throttling Valve (red handle) – Taken on 1/19/2016


Figure 5: Injection point where sludge water from Cell D is mixed with floc and added to the flash tank to be agitated, joined with the incoming water from the reactor tank, and reprocessed – Taken on 1/19/2016

Figure 6: Picture of the equalization pond with Gold King IWTP inlet pipes shown on the far left – Taken on 1/19/2016